C. dauricus and the dark *C. neglectus*, many intermediate forms occur, we must be led to believe that these intermediate forms are hybrids and that *C. dauricus* and *C. neglectus* are distinct species. All recent (Styan and La Touche) and earlier observers (Swinhoe and David) had not the least doubt as to the specific value of the two forms, and I quite agree with them. Of the same opinion seems to be my friend Mr. Dresser, who I think was not much at fault (Man. Pal. B. p. 420) in considering *C. neglectus* a distinct subspecies of *C. monedula*, to which Swinhoe, Giglioli, and others positively say that *C. neglectus* is nearly allied. All field-naturalists who have observed the two forms state that they are frequently found together, and we may suppose it possible that the birds not infrequently have the habit of losing sight of their proper mates.

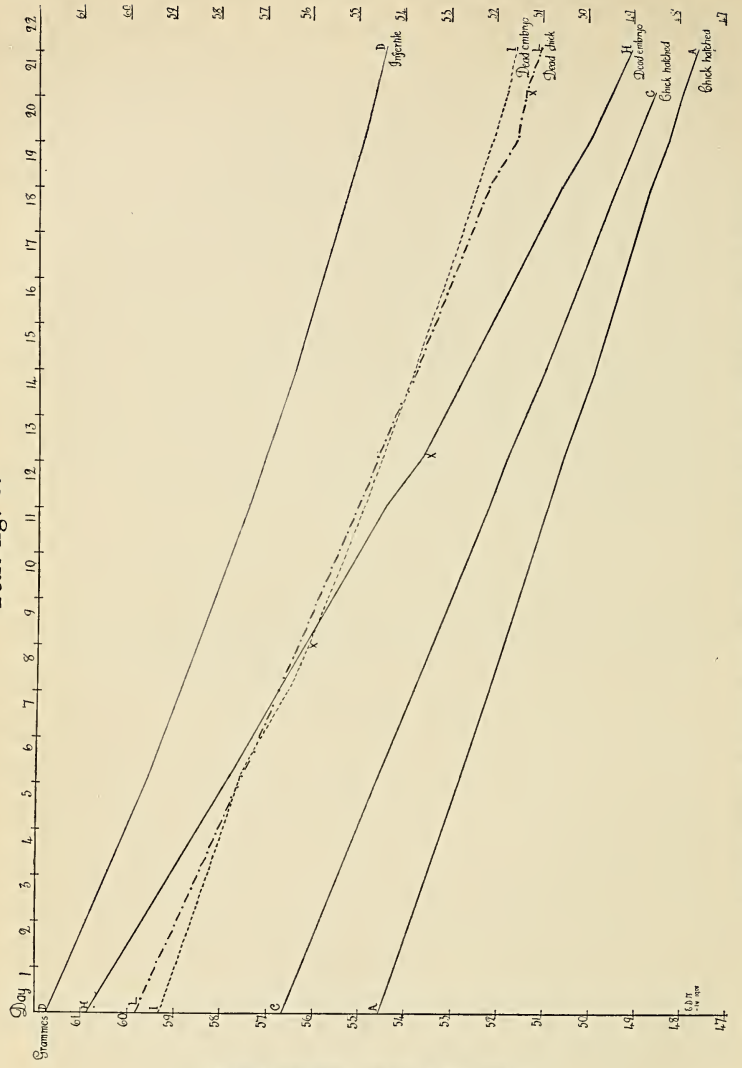
V.—*On the Decrease in Weight of Birds' Eggs during Incubation.* By Elizabeth Seymour Norton, F.Z.S.*

(Text-fig. 6.)

Circumstances arose last summer which made me curious to ascertain whether a partially-incubated Thrush's egg could be distinguished from a new-laid egg by its weight. The natural inference, in the absence of definite knowledge, seemed to be that an egg containing a living, breathing chick would be heavier than an egg containing only the nearly fluid "yolk and white." A few books that I consulted told me nothing with regard to the weight of eggs; so I began a series of incubations of hens' eggs to find out for myself what occurred. I soon discovered that all the eggs decreased in weight as incubation advanced.

After reaching this conclusion I came across the "Note" by Mr. Hugh S. Gladstone which was published in 'The Ibis' of 1904 (p. 376). Mr. Gladstone shewed the average decrease of Pheasants' eggs during incubation to be a little over 14

* Communicated by Mr. W. P. Pycraft, F.Z.S., M.B.O.U.



Text-fig. 6.

Diagram showing the loss of weight in six fowls' eggs during incubation.

Explanation of the Diagram.

Each line in the diagram shews how an individual egg decreased in weight from day to day. The weight in grammes (shown at the sides) determines the height of the line, and the time in days (shown at the top) determines the length of the line. Thus, the line of the egg 1 commences at the point denoting 59·8 gr. on the beginning of the first day of incubation, and it ends at the point denoting 51 gr. on the 22nd day; the egg was opened that day and was found to contain a dead chick. X marks the approximate time of the death of the chick or embryo.

per cent. In a letter published later in 'The Ibis,' 1904, p. 662, Mr. Nevin Foster stated that the decrease in the weight of Thrushes' and Blackbirds' eggs during incubation is about 15 per cent. My results shew that, in like manner, hens' eggs lose weight during incubation to the extent of between 14 and 15 per cent. For example, the average weight of 12 eggs descended from 57·66 grammes to 49·23 grammes in 20 days: this is an average decrease of 14·58 per cent.

Apparently all the eggs weighed by Mr. Gladstone contained living chicks. Now in each of my batches of incubated eggs some proved infertile and others contained dead embryos of varying ages. The curious and interesting fact is, that in every case the infertile and dead-embryo-bearing eggs decreased in weight in very nearly the same degree as did the eggs which eventually hatched out into sturdy chicks. A line which shews the average decrease in weight of three clear, infertile eggs is nearly parallel to that line which shews the average weight-decrease of three eggs—incubated at the same time—from which emerged three perfectly developed chicks.

On examining the lines shewing the loss of weight of individual eggs, I noticed another interesting point—a line generally makes a sudden, erratic drop just before that spot which marks the death of the embryo. Thus, an egg which at the close of the period of incubation contained a dead embryo appears to have suffered an increased loss of weight when the embryo was dying.

The chemical examination and explanation of the loss in weight of incubated eggs, and especially of the fact that the weight-lines of dead and living eggs are so nearly parallel, would prove of great interest. I found that the infertile eggs had not become at all putrid at the end of three weeks' incubation: apparently they lost weight by losing water only. The living eggs, one might assume, would lose water to the same extent as the dead ones, for they were kept under identically similar conditions; but the eggs containing living chicks have the weight of the products of respiration and excretion to be accounted for.

These experiments were conducted at the Regent Street Polytechnic Biological Laboratory; and I have to thank Mr. G. P. Mudge for many kind hints as to my methods of working.

VI.—*On the Birds of Bulawayo, Southern Rhodesia.* By E. C. Chubb, Assistant Curator, Rhodesia Museum, Bulawayo.

The material upon which this paper is based has mostly been collected by myself and others for the Rhodesia Museum during the last eighteen months, although it has been thought worth while, for the sake of completeness, to include in it a number of birds belonging to Mr. R. Douglas, which he has allowed me to examine. These are distinguished by an asterisk.

Bulawayo is situated on the water-parting which divides the Limpopo from the Zambesi River basin, at an altitude of 1450 feet above the sea. The geological formation upon which it rests is schist, while there are outcrops of granite at several places within three or four miles of the town, *e.g.* at the Hillside Kopjes and at the Waterworks Reservoirs.

Encircling the town for a radius of about three miles is the "Commonage," where most of the specimens have been collected, but a number of birds and nests have been obtained at Belle Vue Farm, where I am now living, some four miles south of Bulawayo. The Commonage consists of fairly thick Bush, composed largely of *Acacia horrida* and other leguminous trees, and several species of *Combretum*, while *Copaifera mopani* is common on the granite soil. These trees are all small, averaging in height from eight to ten feet; the absence of large trees being due to the fact that fifteen years ago, prior to the occupation of the country by the White Man, the Commonage was under cultivation by the natives belonging to the chief Lobengula's kraal, the site of the kraal being now occupied by the present town.

The annual rainfall of Bulawayo ranges between 20 and